



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,689	07/31/2003	Michael John Mania	15772.0003	7659

23517 7590 01/09/2007
BINGHAM MCCUTCHEN LLP
3000 K STREET, NW
BOX 1P
WASHINGTON, DC 20007

EXAMINER

FORD, JOHN K

ART UNIT	PAPER NUMBER
----------	--------------

3744

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/630,689

Applicant(s)

MANIA ET AL.

Examiner

John K. Ford

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/25/06
- 2a) This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-12, 16-26 is/are pending in the application.
- 4a) Of the above claim(s) 4, 12, 17 and 19-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5-11, 16, 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Applicant's election of Group I, the apparatus, the first species shown in Figures 1 and 2, the interface sub-species wherein there is a thermal interface between the electrical component and the heat sink, the mounting plate sub-species wherein the mounting plate is electrically insulating and the component sub-species wherein the component is a "through hole" mounted. These elections were made without traverse. The examiner disagrees with applicant's final statement that only claims 1, 3, 5-7 and 16 are readable on the elected species and sub-species. The claims readable on the elected species and sub-species are: 1, 3, 5-11, 16 and 18. Claims 4, 12 and 17 are withdrawn from consideration as being directed to non-elected species. Claims 19-26 are withdrawn as being directed to a non-elected invention.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3744

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 16 and 18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Johnson et al., USP 4,203,488 (Figure 4).

In Figure 4, a heat sink 16, 16a and 16b and a mounting plate base portion 17 with a first vertically extending side wall 17a and a second vertically extending side wall 17b are shown. Hook-like flanges are shown at the top of first vertically extending side wall 17a and second vertically extending side wall 17b and co-act with the hook-like edges of the heat sink 16, 16a and 16b to allow the heat sink to be removably secured relative to the mounting plate. Terminals 19 of the component 15 extend through at least two slots 18 on either side of the component as shown in Figure 4.

Claims 8 -10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al., USP 4,203,488 (Figure 4) as applied to claim 1 above, and further in view of Sigl et al., USP 6,633,485 (Figure 8, col. 5, lines 20-22 and col. 8, lines 19-23) or Phelps (USP 4,878,108).

Johnson does not disclose a thermal interface material between the top of the electrical component and the underside of the heat sink and is silent as to whether or

Art Unit: 3744

not the mounting plate 17 is "fastened" to a substrate (although inherently this would appear to be the case once the terminals 19 of the electrical component were soldered to the circuit board).

Sigl et al., USP 6,633,485 (Figure 8, col. 5, lines 20-22 and col. 8, lines 19-23) teaches using a thermal interface material (specifically, silicone based thermal grease) in this location to "effect more efficient heat transfer". Phelps teaches the same at 24 (a layer of thermal grease between the upper surface of the plastic encased electrical component and the bottom of the heat sink). To have used a thermal interface material such as thermal grease between the top of the electrical component and the underside of the heat sink in Johnson to have advantageously effected more efficient heat transfer would have been obvious to one of ordinary skill in the art in view of the teaching of Sigl et al. or Phelps.

Regarding claim 9, additionally, Sigl et al teaches that the frame 12(a) in Figure 8 is "affixed to a PC board 60(a)" (emphasis supplied). Similarly, Phelps teaches attaching molded component carrier 20 to the circuit board 32 in Figure 2. In view of either of such teachings, it would have been obvious to have affixed mounting plate 17 of Johnson to the underlying circuit board in the final assembly of the device to advantageously better secure the heat sink/base assembly to the circuit board, thereby avoiding any unnecessary mechanical strain on the terminals 19 of Johnson.

Art Unit: 3744

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al., USP 4,203,488 (Figure 4) as applied to claim 1 above, and further in view of Sigl et al., USP 6,633,485 (col. 4, lines 26-30) and/or Clemens, USP 4,712,159 (col. 3, lines 38-55).

Regarding claim 11, in Johnson, col. 5, line 16-33, incorporated here by reference, it is suggested that the heat sink and mounting plate can be constructed of metal (as applicant is claiming in non-elected claim 12), however Johnson also leaves open the possibility that these elements "may be of something ***other than*** stamped sheet metal, with useful results" (emphasis supplied). Johnson fails to disclose any particular alternative(s).

Sigl et al., USP 6,633,485 (col. 4, lines 26-30) teaches making a mounting plate 12 for a component (used in combination with a heat sink 50, analogous to what is shown in Johnson) of plastic in col. 4, lines 26-30, incorporated here by reference. Similarly, Clemens in col. 3, lines 38-55, incorporated here by reference, teaches making mounting plate 50 of an electrically non-conducting material, instead of metal, to eliminate the problem of shorting out the electrical component.

In view of the respective teachings of Sigl and/or Clemens, it would have been obvious to have made element 17 of Johnson of an electrically non-conducting material

to advantageously enjoy the benefit of not shorting out the component in the event of an accidental contact of element 17 of Johnson with the electrical component leads 19.

Claims 1, 3, 8, 9, 10, 11, 16 and 18 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sigl et al (USP 6,633,485).

See Figures 1 and 8, in particular, and the explanation thereof, in the Sigl document, incorporated here by reference. In Figure 1, for example, side walls 26 are shown extending perpendicularly from a plastic base 12. Flanges 30 at the ends of the side walls 26 co-act with groove 58 to removably secure the heat sink 50 to the electronic component 40. Sigl et al., USP 6,633,485 (Figure 8, col. 5, lines 20-22) teaches using a thermal interface material (specifically, silicone based thermal grease) between the bottom of the heat sink and the top of the component to "effect more efficient heat transfer". Regarding claim 9, additionally, Sigl et al teaches that the frame 12(a) in Figure 8 is "affixed to a PC board 60(a)" (emphasis supplied) in col. 8, lines 19-23. Sigl et al. teaches making a mounting plate 12 for a component of plastic in col. 4, lines 26-30, incorporated here by reference.

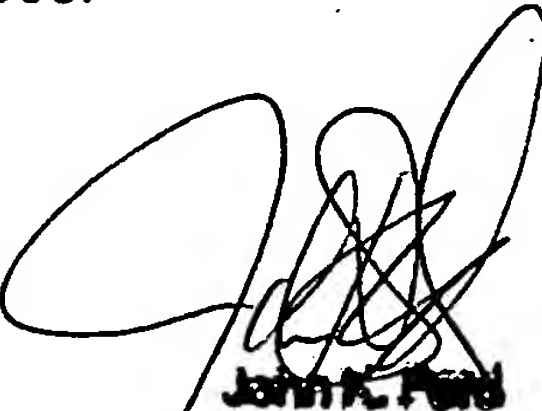
Claims 1, 3, 5-7 and 18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Veranth et al (USP 3,859,570).

A mounting plate base portion 17 has two extending side walls 11 terminating at two flanges 12 and 13. A heat sink 14 is attached by screws 15 and 16 to the flanges 12 and 13. Terminals 25' and 26' extend through the base portion 17.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John K. Ford whose telephone number is 571-272-4911. The examiner can normally be reached on Mon.-Fri. 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



John K. Ford
Primary Examiner